CLAIMS

1. An apparatus for reading or writing information on a media, the apparatus comprising:

a body having a center of mass, a surface, and an electromagnetic transducer;

an actuator disposed adjacent to said surface, said actuator including a first piece, a plurality of deformable elements coupled to said first piece, and a second piece coupled to said deformable elements, each of said deformable elements having a shape that changes in response to a signal to rotate said second piece relative to said first piece about an axis of rotation;

wherein a distance between one of said deformable elements and said axis of rotation is less than a length of said deformable element, and a distance between said transducer and said axis of rotation is at least several times greater than said distance between said deformable element and said axis of rotation.

2. The apparatus of claim 1, wherein:

said second piece is coupled to said body so that said axis of rotation is substantially aligned with said center of mass.

3. The apparatus of claim 1, wherein:

said first piece includes a frame that at least partly encircles said second piece.

4. The apparatus of claim 1, wherein:

said second piece includes a frame that at least partly encircles said first piece.

5. The apparatus of claim 1, wherein:

each said deformable element extends between said first piece and said second piece a length that is at least several times larger than a distance between said deformable element and said axis of rotation.

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6. The apparatus of claim 1, wherein:

said second piece extends outward from said center of rotation an extent that is at least several times larger than a distance between one of said deformable elements and said axis of rotation.

7. The apparatus of claim 1, wherein:

one of said deformable elements is elongated in a first direction between said first piece and said second piece, said one deformable element having a thickness measured in a second direction that is perpendicular to said first direction,

wherein said thickness is reduced adjacent to said center of rotation to form a relatively flexible region of said one deformable element adjacent to said axis of rotation.

8. The apparatus of claim 1, wherein:

one of said deformable elements has material disposed contiguously between said first piece and said second piece along a straight line aligned with said axis of rotation.

9. The apparatus of claim 1, further comprising:

a suspension coupled to said first piece, said suspension including a fulcrum that is substantially aligned with said axis of rotation.

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10. The apparatus of claim 1, wherein:

said actuator includes damping material adjoining said second piece.

11. An apparatus for reading or writing information on a media, the apparatus comprising:

a head having a media-facing surface, a back surface and an electromagnetic transducer;

an actuator disposed adjacent to said back surface, said actuator including a stator and a rotor, with a plurality of deformable elements coupled between said stator and said rotor, each of said deformable elements having a shape that changes in response to a control signal to rotate said rotor relative to said stator about an axis of rotation;

wherein a distance between one of said deformable elements and said axis of rotation is less than a length of said deformable element, and a distance between said transducer and said axis of rotation is at least twice said distance between said deformable element and said axis of rotation.

12. The apparatus of claim 11, wherein:

said rotor is coupled to said head so that said axis of rotation is substantially aligned with a center of mass of said coupled head and rotor.

13. The apparatus of claim 11, wherein:

said moveable element has a void aligned with said axis of rotation.

14. The apparatus of claim 11, wherein:

said moveable element is shaped substantially as a letter H.

15. The apparatus of claim 11, wherein:

said moveable element is shaped substantially as a fan.

16. The apparatus of claim 11, wherein:

said axis of rotation moveable element is substantially fixed relative to said frame.

17. The apparatus of claim 11, further comprising:

a damping material adjoining said moveable element.

18. The apparatus of claim 11, further comprising:

a damping material adjoining said deformable elements.

19. An apparatus for reading or writing information on a media, the apparatus comprising:

a body having a media-facing surface and a back surface, said body having a center of mass and an electromagnetic transducer;

an actuator disposed adjacent to said back surface, said actuator including a frame, a plurality of deformable elements attached to said frame, and a moveable element coupled to said deformable elements, each of said deformable elements having a shape that changes in response to a control signal to rotate said moveable element relative to said frame and about an axis of rotation;

said moveable element being coupled to said body so that said axis of rotation is substantially aligned with said center of mass.

20. The apparatus of claim 19, wherein:

wherein a distance between one of said deformable elements and said axis of rotation is less than a length of said deformable element, and a distance between said transducer and said axis of rotation is at least twice said distance between said deformable element and said axis of rotation.

21. The apparatus of claim 19, wherein:

each said deformable element extends between said frame and said moveable element a length that is at least several times larger than a distance between said deformable element and said axis of rotation.

22. The apparatus of claim 19, wherein:

said moveable element extends outward from said center of rotation an extent that is at least several times larger than a distance between one of said deformable elements and said axis of rotation.

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23. The apparatus of claim 19, wherein:

one of said deformable elements is elongated in a first direction between said frame and said moveable element, said one deformable element having a thickness measured in a second direction that is perpendicular to said first direction,

wherein said thickness is reduced adjacent to said center of rotation to form a relatively flexible region of said one deformable element adjacent to said axis of rotation.

24. The apparatus of claim 19, wherein:

one of said deformable elements has material disposed contiguously between said frame and said moveable element along a straight line aligned with said axis of rotation.

25. The apparatus of claim 19, further comprising:

a suspension coupled to said frame, said suspension including a fulcrum that is substantially aligned with said axis of rotation.